

THE HONORABLE RICHARD A. JONES

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

BRIAN REEF,

Plaintiff,

v.

TARGET CORPORATION, a foreign
corporation, registered to conduct business in
the State of Washington,

Defendant.

)
)
) No. 2:18-cv-00203-RAJ
)
)
) **DECLARATION OF ANNE**
) **VANKIRK IN SUPPORT OF**
) **PLAINTIFF'S MOTION IN LIMINE**
) **TO EXCLUDE DEFENSE EXPERT**
) **BRADLEY PROBST**
)
)
)

I, Anne Vankirk, am over the age of 18 years, and I am competent to testify to the following based upon my personal knowledge.

1. I am the attorney of record for the Plaintiff in the above entitled case.
2. Attached hereto are true and correct copies of the following attachments:

EXHIBIT	Description
1	Declaration of Dr. Massoudi, dated June 9, 2018
2	Report of Dr. Klein, dated October 31, 2018
3	Photos: Still captures of the Target incident, dated April 11, 2015
4	Report of Bradley Probst

DECLARATION OF ANNE VANKIRK - 1

GLP ATTORNEYS, P.S., INC.
ATTORNEYS AT LAW
2601 Fourth Avenue, Floor 6
Seattle, WASHINGTON 98121
(206) 448-1992
FACSIMILE (206) 448-4640

5	117 Reports authored by Bradley Probst between April 29, 2003 and October 5, 2018 and Index																												
6	Curriculum Vitae of Bradley Probst																												
7	Deposition of Bradley Probst in LaCroix v. Healy, King County Superior Court, Cause No. 17-2-04131-9 SEA, dated September 18, 2018.																												
8	Declaration of Donald P. Gaver, dated February 16, 2013																												
9	Correspondence with Dr. Gaver, dated December 17, 2018																												
10	Combined relevant scholarly articles related to Probst's opinions, including: <table border="1"> <tr> <td>1</td><td>Lack of Relationship Between Vehicle Damage and Occupancy Injury</td></tr> <tr> <td>2</td><td>Abstract: Rear-end Impacts: Vehicle and occupant response</td></tr> <tr> <td>3</td><td>SAE: Human Tolerance to Impact Conditions as Related to Motor Vehicle Design</td></tr> <tr> <td>4</td><td>Clinical Response of Human Subjects to Rear-End Automobile Collisions</td></tr> <tr> <td>5</td><td>Chronic Whiplash and Whiplash -Associated Disorders: An Evidence-Based Approach</td></tr> <tr> <td>6</td><td>Understanding and Managing the Impact of Vehicles Crashes: Reconstructing the "Accident"</td></tr> <tr> <td>7</td><td>The Response of Human Volunteers to Rear-End Impacts: The Effect of Head Restraint Properties</td></tr> <tr> <td>8</td><td>Parametric Analysis of Vehicle Design Influence on the Four Phases of Whiplash Motion</td></tr> <tr> <td>9</td><td>BioRID II manikin and human seating position in relation to car head restraint</td></tr> <tr> <td>10</td><td>Influence of Gender, Height, Weight, Age, Seated Position and Collision Site related to Neck Pain Syndrome in Rear End Impacts</td></tr> <tr> <td>11</td><td>The Anatomy and Biomechanics of Acute and Chronic Whiplash Injury</td></tr> <tr> <td>12</td><td>Whiplash Mechanics in Low Speed Rear-End Automobile Collisions</td></tr> <tr> <td>13</td><td>Change of Velocity and Pulse Characteristics in Rear Impacts: Real World and Vehicle Tests Data</td></tr> <tr> <td>14</td><td>SAE: Evaluating the Uncertainty in Various Measurement Tasks Common to Accident Reconstruction</td></tr> </table>	1	Lack of Relationship Between Vehicle Damage and Occupancy Injury	2	Abstract: Rear-end Impacts: Vehicle and occupant response	3	SAE: Human Tolerance to Impact Conditions as Related to Motor Vehicle Design	4	Clinical Response of Human Subjects to Rear-End Automobile Collisions	5	Chronic Whiplash and Whiplash -Associated Disorders: An Evidence-Based Approach	6	Understanding and Managing the Impact of Vehicles Crashes: Reconstructing the "Accident"	7	The Response of Human Volunteers to Rear-End Impacts: The Effect of Head Restraint Properties	8	Parametric Analysis of Vehicle Design Influence on the Four Phases of Whiplash Motion	9	BioRID II manikin and human seating position in relation to car head restraint	10	Influence of Gender, Height, Weight, Age, Seated Position and Collision Site related to Neck Pain Syndrome in Rear End Impacts	11	The Anatomy and Biomechanics of Acute and Chronic Whiplash Injury	12	Whiplash Mechanics in Low Speed Rear-End Automobile Collisions	13	Change of Velocity and Pulse Characteristics in Rear Impacts: Real World and Vehicle Tests Data	14	SAE: Evaluating the Uncertainty in Various Measurement Tasks Common to Accident Reconstruction
1	Lack of Relationship Between Vehicle Damage and Occupancy Injury																												
2	Abstract: Rear-end Impacts: Vehicle and occupant response																												
3	SAE: Human Tolerance to Impact Conditions as Related to Motor Vehicle Design																												
4	Clinical Response of Human Subjects to Rear-End Automobile Collisions																												
5	Chronic Whiplash and Whiplash -Associated Disorders: An Evidence-Based Approach																												
6	Understanding and Managing the Impact of Vehicles Crashes: Reconstructing the "Accident"																												
7	The Response of Human Volunteers to Rear-End Impacts: The Effect of Head Restraint Properties																												
8	Parametric Analysis of Vehicle Design Influence on the Four Phases of Whiplash Motion																												
9	BioRID II manikin and human seating position in relation to car head restraint																												
10	Influence of Gender, Height, Weight, Age, Seated Position and Collision Site related to Neck Pain Syndrome in Rear End Impacts																												
11	The Anatomy and Biomechanics of Acute and Chronic Whiplash Injury																												
12	Whiplash Mechanics in Low Speed Rear-End Automobile Collisions																												
13	Change of Velocity and Pulse Characteristics in Rear Impacts: Real World and Vehicle Tests Data																												
14	SAE: Evaluating the Uncertainty in Various Measurement Tasks Common to Accident Reconstruction																												

DECLARATION OF ANNE VANKIRK - 2

GLP ATTORNEYS, P.S., INC.
ATTORNEYS AT LAW
2601 Fourth Avenue, Floor 6
Seattle, WASHINGTON 98121
(206) 448-1992
FACSIMILE (206) 448-4640

	15	SAE: Analysis of Human Test Subject Kinematic Responses to Low Velocity Rear End Impacts		
	16	Advances in the Understanding of Rear Impact Collision - Updating Physics, Biomechanics and Statistics		
	17	CV of John J. Smith		
	18	The Problem with Probability		
	19	Applications and limitation of Forensic Biomechanics: A Bayesian perspective		
	20	Influence of Crash Severity on Various Whiplash Injury Symptoms: A Study Based on Real-Life Rear-End Crashes with Recorded Crash Pulses		
11	Orders excluding Probst, including:			
	Date	Plaintiff	Judge	County
	05/02/2006	Burkett-Wood	Calvin L. Scott Jr.	New Castle (Delaware)
	07/14/2009	Abshir	John P. Erlick	King
	11/16/2009	Stern	Theresa Doyle	King
	02/29/2012	Corner	Jay V. White	King
	06/20/2012	Shim	Barbara Linde	King
	09/06/2012	Arnold	Patrick Oishi	King
	09/14/2012	Guzek	Garold E. Johnson	Pierce
	11/07/2012	An	Hollis Hill	King
	12/21/2012	Williams	Palmer Robinson	King
	02/19/2013	Brumfeld	Jim Rogers	King
	02/26/2013	Ehringer	Mary Roberts	King
	10/02/2013	Galvan	Kimberly Prochnau	King
	02/24/2014	Todd	Schubert	King
	05/20/2016	Dworsky	Bryan Chushcoff	Pierce
	08/20/2018	Chalal	Alicea Galvan	King
12	Relevant portions of the deposition transcript of Bradley Probst from the case <i>Wolf v. Stevens</i> , King County # 12-2-11026-3 SEA			

UNDERSTANDING PROBST REPORTS

**PART 1 – “INJURY” AND “BIOMECHANICAL FAILURE” MEAN THE SAME
THING**

3. Attached are 117 reports authored by Bradley Probst. In reviewing these reports several things stand out:

3a. Discussion of injury: Mr. Probst discusses “injury” in all of his reports up until September 20, 2012. He never uses the term “biomechanical failure” a single time in any of his reports before September 20, 2012.

3b. Probst was repeatedly excluded for discussing injury: Probst’s tactic of directly discussing injuries was an easily recognizable problem for the Courts because Mr. Probst has no health care credentials in any state. He was repeatedly being excluded because he was discussing “injuries.” In the most egregious instances, he was not only discussing injuries, but also appropriate treatment plans. *See* Nock Report at REPORTS0001, wherein he states, “While minor transient neck pain can certainly occur in a rear-end collision, it is unlikely that it would have required any medical attention and would have resolved itself in a relatively short period of time.” (Nock at p. 6). Following exclusions for his use of this tactic in at least four cases in 2012, Mr. Probst coins the term “biomechanical failure” and introduces it for the first time in his report dated September 20, 2012. *See* Allegue Report at REPORTS0374.

1 3c. Probst uses “biomechanical failure” as an exact substitute for “injury”: It is
2 useful to compare a report that Probst wrote on September 11, 2012 (Brumfeld Report,
3 REPORTS0362) with one that he wrote on September 20, 2012 (Allegue Report,
4 REPORTS0374). These reports are identical except: (1) he changed the names of the
5 parties), (2) he changed the names of the vehicles involved, and (3) he replaced 37
6 instances of the word “injury” with “biomechanical failure.” There are literally no other
7 changes. This find and replace method to avoid exclusion is easily identifiable because
8 many of the references to “injury” in the Brumfeld report are actually citations to scholarly
9 articles – and he still changed the references to “biomechanical failure.” So, the citations
10 that he makes with regard to “biomechanical failures” are in fact just articles about
11 injuries.
12

13
14 3d. Probst is talking about injury when he uses the term biomechanical failure:
15 Probst actually missed a reference to injury in the Allegue report – he accidentally left the
16 reference to “Injury Summary” as a heading on page 3. He continued to use “Injury
17 Summary” until November 29, 2012, when he finally changed it to “Biomechanical Failure
18 Summary” in the Wu report. *See* REPORTS0456. In the Wu report, he does not use the
19 word “injury” a single time other than footnotes to articles that include the word “injury”
20 in their title. He had completely scrubbed all reference to injury. But in comparing reports
21 pre- and post- his “find and replace” job to remove all reference to injury and replace it
22 with “biomechanical failure,” it is clear than none of his analysis or conclusions changed.
23
24
25
26

1 He continues to talk about injury, as always, – he just coined to new term “biomechanical
2 failure” to try to avoid being excluded.

3
4 3e. Probst denies that he uses the terms interchangeably even though he
5 directly interchanged them: Mr. Samuel Elder, unfamiliar with the term “biomechanical
6 failure” asked Mr. Probst to define what he meant. Unfortunately, even Probst could not
7 differentiate the two phrases:

8
9 Q You use a term in your report, biomechanical failure. What do you mean by
that?

10 A Basically it's a mechanical failure that's biologic in nature.

11 Q Do you mean the same thing as injury?

12 A No. I mean specifically mechanical failure that's biologic in nature.

13 Q What's the difference between biomechanical failure and injury?

14 A I would have to ask you to define injury.

15 Q Do you use the term injury?

16 A Certainly at times I use, from a medical point of view, that they say
17 somebody has been injured.

18 Q Sometimes you use the term biomechanical failure, sometimes you use the
term injury; isn't that fair?

19 A Well, it depends on what context. Sometimes it's a quote that somebody
claims they were injured or something from another report, but certainly it's
possible we use the term injury.

20 Q What's the difference in the way that you use the terms biomechanical failure
and injury when you use those terms?

21 A Again, it would depend upon the context in which they were used to begin
with.

22 Q Do you use those terms interchangeably?

23 A I try not to because specifically, again, trying to allow the readers of the
report to understand exactly what we're doing, I attempt to say biomechanical
failure just so there's no confusion as to what I'm actually doing or what I'm
analyzing or what my opinions are.

24 Q Do you believe that it would be improper to use them interchangeably?

25 A Again, it depends on the context. It's possible they could be. It depends upon
your definition of injury.

1 Q Let me ask you this. You've authored a number of different reports over the
2 years. Have you used the terms biomechanical failure and injury
interchangeably?

3 A I don't know about interchangeably, but as I said, I think I've tried to use
4 biomechanical failure much more so now because there appears to be some
5 confusion as to what biomechanics is and what a biomechanical failure is. So
again, just to be precise and specific I attempt to say biomechanical failure.

6 Exhibit 10, Wolf dep., p. 15: 23 to p. 17: 14.

7 Mr. Probst also testified that he believed the Plaintiff in that case had claimed
8 "biomechanical failures:"
9

10 Q Has Laura Wolf ever claimed any biomechanical failures?

A Certainly, yes.

11 Q What biomechanical failures has she claimed?

12 A They are well documented in my report starting on page three. Well, simply
just on the bottom of page three.

13 Q And so what you're talking about is cervical spine strain/sprain, thoracic and
lumbar spine sprain/strain, and right shoulder rotator cuff tear?

14 A Correct.

15 Q Aren't those the injuries that she's claiming?

A These are biomechanical failures, as I note.

16 Q I don't think she's ever called them biomechanical failures. I've never called
17 them biomechanical failures. She said that she was injured and these are her
injuries, her doctors have said that these are her injuries, but I haven't heard
18 anyone call it biomechanical failures but you. Did you see any reference to
anyone calling this a biomechanical failure other than you?

19 MR. NYE: Object to the form.

20 A Again, as it states here, according to the documents this is what's reported in
her records that these are the biomechanical failures. Again, I'm looking at it
21 from a biomechanical point of view. That is what's in those documents.

22 Q In any document do you see anyone ever call this a biomechanical failure?

A I don't recall. I have hundreds and hundreds of pages of documents. I don't
recall honestly.

23 Q Is that a term that doctors typically use?

24 A I don't know if I've seen it quite often. Generally not. It might just be noted as
sprain or strain or something like that.

25 Exhibit 10, Wolf dep., p. 19: 6 to p. 20: 12.
26

1 Based on this answer, I can only conclude that “biomechanical failure” is
2 synonymous with injury. It appears that Mr. Probst uses the terms “injury” and “injury
3 mechanism” interchangeably with “biomechanical failure” and “biomechanical failure
4 mechanism.” It appears that Mr. Probst started using the term “biomechanical failure”
5 because he is not a doctor or health care provider of any kind, so he was being excluded for
6 discussing “injuries.” So he invented a kind of “double-speak” to get to avoid being
7 excluded – but he is still just discussing injuries and causation of injuries when he has no
8 license to do so. In fact, in the Fox case, he goes so far as to state, “While minor transient
9 neck pain can certainly occur in a rear-end collision, it is unlikely that it would have
10 required any medical attention and would have resolved itself in a relatively short period of
11 time. An injury mechanism for the claimed cervical injury was not present in the subject
12 incident.” Mr. Probst apparently feels comfortable expressing opinions on specific
13 diagnosis of injuries and whether treatment is appropriate or not even though he is not a
14 medical doctor or health care provider of any kind.

18 4f. Throughout this declaration, just like in Probst’s reports, you can read
19 “injury” and “biomechanical failure” interchangeably. You can find the quoted language
20 both ways. Indeed, it is not possible to separate the two terms when discussing Probst’s
21 reports, because they represent the same impermissible medical opinion.
22

23 //

24 //

1 **PART II – PROBST’S CONCLUSIONS AND PROBLEMS ASSOCIATED WITH**
2 **THEM**
3

4 4. Probst’s conclusions are consistent across the 117 reports. Each report has a
5 conclusion section where these same conclusions can be found nearly every time. I
6 generally discuss each of his eight categories of conclusions, but because the science
7 simply does not apply here at all, I have limited my discussion. Each conclusion I discuss
8 begins with an example of the conclusory paragraph and is followed by subparts. The first
9 paragraph (6a, 7a, 8a, 9a) contains the category, example, and four citations for easy
10 reference (although many of these conclusions are found in nearly all 117 attached
11 reports).
12

13 5a. Injury status and need for treatment: Example: “While minor transient neck
14 pain can certainly occur in a rear-end collision, it is unlikely that it would have required
15 any medical attention and would have resolved itself in a relatively short time.” Four
16 examples: REPORTS 0006, 0038, 0052, 0102.
17

18 5b. Probst holds no health care credentials in any state. He is not a licensed
19 engineer or professional engineer. He obtained a masters in Biomechanical Engineering
20 from Tulane. Probst is totally unqualified to diagnose injury. Probst is completely utterly
21 out of his element when he starts issuing opinions related to whether a particular person
22 needed to see health care and the prognosis for how soon they will recover. Yet Probst
23 does not allow his total lack of qualifications stop him from rendering opinions.
24
25
26

1 5c. Probst offers unqualified medical opinions disguised as the manner in
2 which someone can be injured in the first place. In an attempt to circumvent exclusion due
3 to discussing specific injury without proper qualification to do so, Probst offers opinions
4 generally about injury and the root causes thereof. For example: In the Stark report
5 (REPORTS0518), Probst opines that plantar fasciitis is a degenerative condition and
6 “occurs due to prolonged standing and running.” This conclusion is deceptive because
7 describes degenerative plantar fasciitis and ignores acute plantar fasciitis, which can occur
8 due to sudden injury. Probst then goes on to conclude that there is no “biomechanical
9 failure mechanism” present to account for Ms. Stark’s plantar fasciitis, without ever
10 raising, discussing, or even acknowledging the injury mechanism of acute (accident
11 related) plantar fasciitis. *Id.* at 0519. It is unclear as to whether this misleading conclusion
12 is due to a deliberate attempt to deceive, or if it is the unsurprising oversight of an
13 unqualified person.

14 6a. No injury mechanism: Example: “There was no injury mechanism present
15 to account for Ms. X's claimed back injuries.”

16 6b. Probst proposes a two part test for whether injury occurred:

- 17 1. Did the subject incident load the body in a manner known to cause damage to
- 18 a body part? That is, did the subject event create a known injury mechanism?
- 19 2. If any injury mechanism was present, did the subject event load the body
- 20 with sufficient magnitude to exceed the tolerance or strength of the specific
- 21 body part? That is, did the event create a force sufficiently large to cause
- 22 damage to the tissue?
- 23
- 24
- 25
- 26

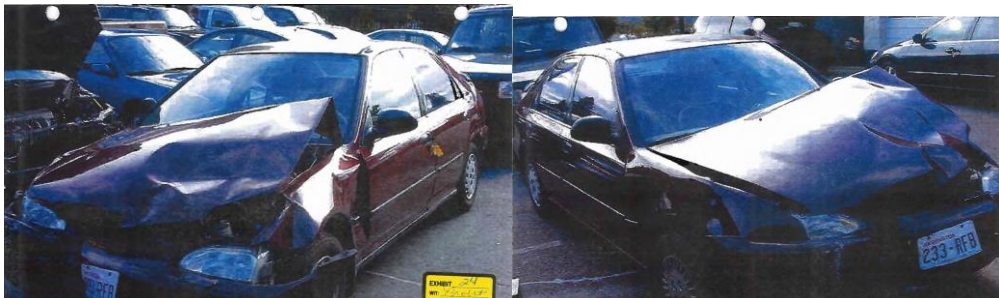
1 The key to understanding Probst's opinions is that he consistently – 117 out of 117
 2 reports¹ – answers the first question NO. He never finds that there is any mechanism that
 3 could even account for an injury. Thus, he never actually needs to get to the magnitude
 4 question. He goes ahead and talks about the magnitude, but his conclusion of no injury (or
 5 no biomechanical failure) is always premised on finding no mechanism of injury was
 6 present – irrespective of the magnitude of forces.

8 6c. Probst does not just deny that these 117 people were injured in a particular
 9 collision – he denies that there was even a mechanism by which someone could potentially
 10 be injured. So, this is not even that these 117 people just got lucky and escaped the
 11 collision uninjured. Probst opines that there is no mechanism that could possibly injury
 12 anyone in any of these 117 cases that he reviewed. Probst's opinion is not only generic and
 13 non-specific to the 117 plaintiffs in these cases, but any of the 7,530,000,000+ humans on
 14 this planet could have been in all 117 collision, and no one would have gotten hurt. How
 15 do we know this? Because Probst opines that there was simply no mechanism present by
 16 which *anyone* could be injured.

19 6d. The conclusion that “no biomechanical failure mechanism was present” is
 20 shocking enough, and clearly runs counter to the huge body of scientific literature
 21 regarding whiplash as an injury producing mechanism, but it looks even worse in the
 22

24 ¹ Note that there is one exception in the supplied reports at REPORTS0077. In this report, Probst does not
 25 opine that the plaintiff, an elderly woman, could not have been injured (she was killed after being run over by
 26 the defendant's truck). Outrageously, he finds that the plaintiff had 3.59 seconds to observe the defendant's
 vehicle and 0.25 seconds to get 14.75 feet to safety. His conclusion: “she had ample time” to get to safety and
 therefore her death was her own fault. REPORTS0077-0079.

1 context of the specifics of the collisions. For example, these are the photographs of the
2 vehicle in which Baccay (REPORTS0208) was an occupant:
3



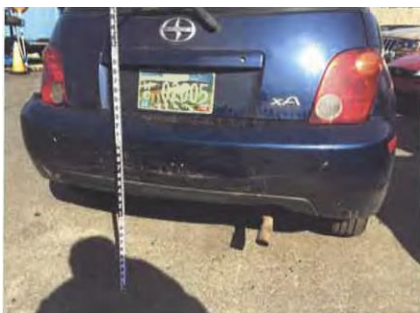
9 And the vehicle where Chalal (REPORTS1284) was an occupant:
10



20 This is the car that hit Chicas (REPORTS1211):
21
22
23
24
25
26



And it went under Chicas's bumper as shown in this photo:



In all three of these cases, Probst concludes that there was no injury mechanism. There was no mechanism that could have caused injury not only to the plaintiffs, but to any and all 7,530,000,000 people on this planet.

6e. Obviously, there is an injury mechanism that is present in motor vehicle collisions. The scientific literature is full of studies about injuries from motor vehicle collisions. See Ex. 10, Combined Articles. People get hurt in car accidents. *Id.* The mechanism is usually whiplash (shearing forces, compression forces, hyper-extension, and hyper-flexion) but can involve other mechanisms such as blunt force trauma. *Id.* These

1 mechanisms are well described in the scientific literature and part of our common sense.

2 *Id.*

3
4 6f. I incorporate the discussion in 6c here. Often, Probst uses this conclusion to
5 link in his impermissible medical opinions titled “evaluation of biomechanical failure
6 mechanisms” as a back doored dismissal of the plaintiff’s actual injuries, even though he is
7 completely unqualified to offer a medical opinion.

8
9 7a. Magnitude of forces are within human tolerance: “The acceleration
10 experienced by Ms. X was within the limits of human tolerance and the personal tolerance
11 levels of Ms. X based on an engineering analysis experienced during various daily
12 activities.” Probst suggests that he knows the personal tolerance levels of each of these 117
13 individuals – individuals that undoubtedly vary widely.

14
15 7b. The first problem is that Probst is focused purely on the magnitude of the
16 forces. We all know the difference between being poked in the shoulder and being poked
17 in the eye. It is not simply the magnitude of the forces – it is also the application of the
18 forces to the body that matter. Similarly, the forces would be exactly the same if I was
19 dropped from one foot high onto my feet or my head. Dropping me on my feet is no
20 problem – dropping me on my head is likely to send me to the emergency room. The fact
21 that someone may consciously and voluntarily engage in activities such as running or
22 jumping that generate high forces tells us nothing about a person’s ability to undergo the
23 non-physiological movements encountered in collisions or other incidents. It is truly not a
24 question of magnitude. The human body can take lots of forces in the right way, but very
25
26

1 little force in a situation like whiplash. This is why so many people get hurt in car
2 accidents – the application of forces to our body in this way easily produces injury.

3
4 8a. No causal link between the incidents and injuries: “There is no causal link
5 between the reported back injuries of Ms. X and this reported collision. Ms. X’s thoracic or
6 lumber spine experience loading on a daily basis greater than that experienced in this
7 incident.” Probst denies causation.

8
9 9a. Probst has been repeatedly precluded from testifying by trial courts in
10 Washington because (1) he is unqualified to testify on the matters that he proposes to
11 testify about, (2) his testimony either directly states or implies that a plaintiff was not
12 injured, but he is not a medical provider, (3) his opinions are unscientific, (4) his opinions
13 are not helpful to the jury, (5) his opinions are based on speculation or conjecture, and (6)
14 his opinions are more prejudicial than probative. See Ex. 11, Combined Orders Excluding.

15
16 In excluding Mr. Probst's testimony in Corner v. Lusardo, King County # 11-2-
17 04500-5KNT, the Honorable Jay White wrote:

18 Medical injury causation must be proved by competent medical testimony.
19 Probst's opinions rely on examination of photographs of damage to the
20 subject vehicles and controlled low impact tests experienced by volunteers
21 subjected to rear-end impacts which he asserts are of comparable or greater
22 severity to that experienced by plaintiff. His conclusions that there is "no
23 injury mechanism present in the subject incident" to account for plaintiffs
24 injuries go well beyond the opinion testimony deemed within the discretion
25 of the court to admit in *Ma'ele v. Arrington*, 111 Wn.App. 557 (2002).
26 Probst's opinions are not helpful to the jury in determining whether this
particular plaintiff in this particular case sustained injury from this
particular accident.

1 An Order signed by the Honorable Barbara Linde, excluding Mr. Probst's testimony
 2 in Shim v. Swenson, King County # 11-2-03939-1 SEA, and noted, "[t]he testimony
 3 offered leads to an inference that Mr. Probst is testifying, as a medical expert, about the
 4 plaintiffs injuries in this case. Mr. Probst is not qualified to do so."

6 In Brumfield v. Bustamonte, King County # 12-2-04210-2SEA, Judge Jim Rogers
 7 stated, "The proposed opinions mislead on several bases. First, assuming the opinions are
 8 true, injuries are awarded for more than "biomechanical failures" yet his opinions seek to
 9 imply that no injuries of any kind were suffered. Second, the expert never reviewed any of
 10 the medical records of this plaintiff. The Court understands that this expert is not giving
 11 opinions on medical causation, but that is exactly what he implies by his opinion of
 12 'biomechanical failure.' Thus, there is a lack of foundation."

14 In Williams v. McLean, King County # 12-2-01978-9SEA, Judge Palmer Robinson
 15 found:

17 Mr. Probst's offered testimony goes far beyond a description of the forces in
 18 this motor vehicle accident. It is an offer of testimony of medical causation
 19 from someone who is not qualified to give it. Even were Mr. Probst a physician
 20 and able to diagnose medical causation, which he is not, there is no showing
 21 that the idea that forces such as existed in this accident are incapable of
 22 producing injury is generally accepted in the relevant, i.e. medical, scientific
 23 community.

24 In An v. Smith, King County # 11-2-30189-3KNT, Judge Hollis R. Hill excluded
 25 Probst, finding:

26 Medical injury causation must be proved by competent medical testimony
 based on a more probable than not standard. Dr. Probst's opinions that the
 impact at issue in this case was too slight to have resulted in plaintiff's alleged

injuries is in essence a medical opinion which as a biomechanical engineer Dr. Proubst is not qualified to give. Furthermore, the "limits of human tolerance" as determined by Dr. Proubst using test subjects of unknown health, age and conditioning are irrelevant to the question of causation of Ms. An's alleged injuries. Therefore, the testimony regarding the lack of causal relationship between the subject incident and Ms. An's claimed injuries is inadmissible under ER 702 and ER 402.

Furthermore, this evidence would encourage impermissible speculation on the part of the jury, in the absence of competent medical evidence, that the plaintiff herself was not in fact injured in the subject incident. Therefore ER 403 precludes admission of this evidence because its probative value is substantially outweighed by its potential prejudicial impact.

Finally, in his report Dr. Probst states, "[t]he severity of the subject incident was consistent with a Delta-V less than 5 miles-per-hour with an average acceleration less than 1.5 g for the subject 2006 Lexus RX 400h in which Ms. An was seated." There is insufficient foundation for this conclusion in that he utilizes an Insurance Institute for Highway Safety (IIHS) low speed test of an "essentially the same" vehicle which showed certain damage when crashed into a flat barrier at 5 miles an hour. There is no assertion or showing that the rear end collision in this case was comparable to a crash into a flat barrier. The opinions based on these test studies lack sufficient foundation and are therefore irrelevant under ER 402. Because they would not assist the trier of fact to understand the evidence or determine a fact in issue they are also inadmissible under ER 702.

In Guzek v. Rubino, Pierce Co. # 09-2-06071-7, Judge Garold E. Johnson found:

Having said that, after reviewing his materials, I find that they're not helpful compared to their potential harm. In other words, while somewhat probative at some level, I think, I tend to agree with the court's comment it's fascinating science, but not very helpful to the finder of fact. And therefore, its probative value is outweighed by its prejudicial effect.

One of the things that concerned me as I was reading through it is that there's no indication, whatsoever, of how susceptible this particular person is to injury. None, whatsoever. And neither could he make that kind of a calculation. There's no indication he has any idea of the location, the movement, the forward forces, the lateral movement, any of that on the part of the plaintiff before impact. There's no indication of how much energy may have been

1 enforced because she applied the brakes, because he has no idea how fast the
2 car was going when the brakes were applied.

3 There's no indication of energy to be absorbed by other matters at the scene,
4 non-photographed matters, such as underneath of the car, or the curb, or the – in
5 this case wouldn't be a curb, but whatever else may have been there. None --
nothing, whatsoever. No photographs of the area that he reviewed at all.

6 And clearly, the inference that this expert is trying to persuade the jury --
7 because he said so outright -- but even if I was to strike that portion of it, the
8 only import of this testimony is the inference that the defendant [sic] was not
9 hurt in this accident. But there's no medical testimony that supports that
conclusion whatsoever.

10 Thus, judges have routinely excluded Probst for lack of qualifications as a
11 healthcare provider, lack of foundation, and for proffered testimony that is more prejudicial
12 than probative.

13 10a. Probst's opinions contradict numerous scholarly articles. These are
14 discussed below.

15 10b. Davis, Rear-end impacts: vehicle and occupant response, J. Manipulative
16 Physiol. Ther., Nov-Dec 1998, p. 629-39, establishes that there is no relationship between
17 property damage and injuries. ("In low-impact collisions, there are usually no skid marks
18 or visible damage to the vehicle. There is a lack of relationship between occupant injury,
19 vehicle speed and/or damage. There does not seem to be an absolute speed or amount of
20 damage a vehicle sustains for a person to experience injury. Crash tests indicated that a
21 change of vehicle velocity of 4 km/hr (2.5 mph) may produce occupant symptoms. Vehicle
22 damage may not occur until 14-15 km/hr (8.7 mph).") [Decl. of Elder, Ex. 6]
23
24
25
26

1 10c. Human Tolerance to Impact Conditions as Related to Motor Vehicle
 2 Design, SAE J885, establishes that there are no scientifically established tolerance levels
 3 for injury. In other words, there is no force at which we can say with confidence that injury
 4 will not occur. There is simply too much human variability.
 5

6 4.2.2 DETERMINATION OF TOLERANCE LEVELS—A comprehensive
 7 discussion of the factors involved in the determination of human tolerance
 8 levels is beyond the scope of this report. Indeed, such specifications are beyond
 9 the state-of-the-art in biomechanics except perhaps for a few academic
 10 situations. There are several difficulties which prevent a ready establishment of
 11 human tolerance levels. First, there are differences in judgement as to the
 12 specific degree of injury severity that should serve as the tolerance level.
 13 Second, large differences exist in the tolerances of different individuals. It is
 14 not unusual for bone fracture tests on a sample of adult cadavers to show a
 15 three-to-one load variation. Presumably, variations of at least this magnitude
 16 exist in the living population. Finally, most tolerance levels are sensitive to
 17 modest changes in the direction, shape and stiffness of the loading source. The
 18 above considerations indicate that complete and precise definitions of human
 19 tolerance levels will require large amounts of data based on controlled
 20 statistical samples. Only in this way can the influence of age, size, sex, and
 21 weight be comprehensively assessed and only in this way can mean loads and
 22 statistical measures of scatter be linked to specific tolerance levels.
 23

24 The paper goes on to discuss limitations in using “crash test dummies” or
 25 “surrogates” to apply to humans generally. Section 6, pages 46-48. “An area of concern in
 26 the restaging of accidents is the uncertainty in matching the surrogates' positioning in the
 vehicle to that of the human occupant. The latter's exact pre-impact position is generally
 unknown; yet, crash test experience has indicated that small differences in dummy
 placement can often produce substantial differences in the level of the measured injury
 indicators.” (p. 48, para. 6.2.2.1)

10d. Brault, et al, Clinical Response of Human subjects to Rear-End Automobile Collisions, Archives of Physical Medicine Rehabilitation, Vol. 79, January 1998, establishes that 29% and 38% of subjects exposed to 2.5 mph and 5 mph speed changes in collisions experience whiplash associated disorder. "Approximately 29% and 38% of the subjects exposed to 4km/hr and 8km/hr speed changes, respectively, experienced WAD symptoms, with cervical symptoms and headaches predominating."

"Approximately 6.5 million motor vehicle accidents occurred in the United States in 1994, resulting in approximately 3.2 million injuries. Eighteen percent of the accidents involving passenger cars were rear-end impacts that caused injury to 500,000 persons. Rear-end impacts result in a higher frequency of "whiplash" injuries in comparison with other crash configurations. According to the Insurance Research Council, the incidence of bodily injury liability claims associated with motor vehicle accidents has been increasing, with sprain/strain injuries accounting for the greatest share of injuries. Frequently, scientific literature uses the term *whiplash* to describe not only a mechanism of injury but also the injury or syndrome associated with the mechanism. According to the recommendations proposed by the Quebec Task Force in 1995, this study uses the term *whiplash-associated disorders* (WAD) to refer to the various clinical manifestations associated with the whiplash injury mechanism, including cervical soft-tissue strain, headache, dizziness, tinnitus, memory loss, temporomandibular joint (TMJ) pain, and others.

The results of this study reveal objective clinical deficits consistent with WAD at both 4 km/h and 8km/h speed changes in both men and women. The distribution of symptoms by body region agrees with clinical reviews and descriptive case series of WAD, with cervical symptoms and headaches predominating.

10e. Bartlett, Evaluating the Uncertainty in Various Measurement Tasks Common to Accident Reconstruction, SAE 2002-01-0546, highlights the uncertainty associated with crush estimates based on photographs:

CRUSH ESTIMATES FROM PHOTOGRAPHS

Participants were asked to estimate the crush and or Equivalent Barrier Speed (EBS) of a vehicle from a single photograph (Figure 19) or a set of two photographs (Figure 20a and 20b) without any additional information. In the single photograph exercise, 57 participants provided 11 crush estimates and 49 EBS estimates. ... In the two photograph exercise, 52 participants provided 8 crush estimates and 51 EBS estimates. ... Most of the participants in this exercise reported that they would not attempt to use information generated in this fashion in a reconstruction without additional details and analysis.

10f. McConell, et al, Analysis of Human Test Subject Kinematic Responses to Low Velocity Rear End Impacts. Tests were run with the struck vehicle experiencing speed changes of 6-8 kph (4-5 mph) and 3-5 kph (1.9-2.4 mph).

The data from our low velocity rearend collision test series using volunteer test subjects supports the preliminary conclusion that substantial Gz direction acceleration occurs and is associated with both compressive and tensile forces sequentially directed axially through the cervical spine.

These push-pull forces probably represent an injury causation mechanism independent of the commonly described cervical “whiplash” hyperextension/hyperflexion mechanism. For rearend collisions within the velocity range included in our test series, the classic “whiplash” injury mechanism, seems unlikely since no hyperextension or hyperflexion was observed in any of our test subjects. Despite having experienced no neck excursions beyond their voluntary range limits, three of our four test subjects transiently had very mild, but clinically classic neck discomfort symptoms.

10g. Freeman, The Problems with Probability. Michael Freeman, Ph.D., M.P.H., D.C. discusses the problems with biomechanics using probability after a crash to determine that, since the probability of injury in a low-speed crash is very low, the plaintiff could not have been injured. This type of reasoning is obviously flawed.

The defense's use of probability in minor impact soft tissue (MIST) cases differs from its use in major auto injury and death (MAID) cases in several ways. The defense uses probability after the fact to deny causality in MIST

1 cases. For example, an expert will say it is within the realm of possibility that a
 2 plaintiff who developed neck pain within a day of a minor collision, or felt arm
 3 pain within a week, or was diagnosed with a herniated cervical disc within a
 4 month had these symptoms before the collision, was injured some other way, or
 5 is not really injured. This allows the defendant to ask the jury to speculate about
 6 some other, unnamed injury cause.

7 In contrast, the defense cannot claim that a plaintiff who has been
 8 catastrophically injured or killed in a high-speed collision was paralyzed or
 9 dead before the collision or was injured in some other way shortly afterward. In
 10 MAID cases, the defense must account for the injury while pointing to a higher
 11 probability that the failure to wear a seat belt or the plaintiffs excessive speed,
 12 for example-rather than a product failure or the negligence of the defendant-
 13 caused injury.

14 In MIST cases statements of probability form the entire basis for the defense
 15 strategy. The defense will tell the jury that injuries are unlikely when there is
 16 minimal damage to a vehicle. Defense experts will claim that at low speeds
 17 injury is so improbable that it is virtually impossible. Defense medical
 18 examiners will opine that most patients will recover from injury in a matter of
 19 weeks or months, and so the plaintiff's protracted recovery is so unlikely that it
 20 must be due to some other injury or preexisting condition.

21 With these proclamations the defense and its experts are telling the jury: If
 22 something is unlikely to have happened then it *probably* didn't happen. Many
 23 judges will allow such testimony over the plaintiff's objections, relying on the
 24 jury to assign the appropriate weight to the opinions they hear.

25 ...

26 For MIST cases:

- Risk is a predictive tool, and you cannot predict the past. Risk or probability cannot be used retrospectively to cast doubt on or deny an injury that has been observed and recorded. The defense may try to use the low likelihood of injury after a crash to deny that the crash caused injury. ...
- What is "usual," "typical," or "average" has no application to a specific case. References to average injury responses to a crash are irrelevant to individual outcomes. The defense may use expressions like "most people" or "usually" when discussing a plaintiff's injuries in an effort to cast doubt on them because they are somehow out of the ordinary. Even if it is true that the average person would not suffer permanent injuries in a particular crash – a statement that would have to be validated with real data – this does not mean that 30 percent of the population would not be permanently

injured, or that the plaintiff is “average.” A good analogy is body weight: If the average person weighs 170 pounds, this does not mean that the next person who walks through the door cannot weigh 200 pounds.

- Injury risk is population-specific. Gender, age, physical condition, vehicle type, and other variables all contribute to risk injury in a crash. A 53-year old woman with a history of neck surgery belongs to a relatively rare demographic group, and so the claim that injury from a minimal-damage crash is highly unlikely to the general public has little meaning for her case. Even if accurate, such claims are relevant only when there is no specific individual with an injury. Once the injury has occurred, the various risk factors for injury present in an individual define a target population for which injury-frequency statistics do not exist. ...
- The opinion must have a sound basis. When an expert testifies that injuries are unusual in crashes with less than a certain amount of vehicle damage, this opinion must be challenged. It implies knowledge of injury risk for such crashes, and risk is a population-based inference. Evidentiary standards, such as those established by Frye and Daubert, allow for hearings in which unfounded and speculative claims of probability can be challenged and excluded.

10h. Freeman, Applications and limitations of Forensic Biomechanics: A

Bayesian perspective.

The accuracy of Forensic Biomechanics largely depends on the circumstances in which it is applied and the pre-test probability of the condition of interest. The technique results in the most accurate results when used to explain how an injury occurred, vs. when it is used to refute the causal relationship between an injury mechanism and an injury. The results may be mixed when the technique is used to evaluate the probability of an injury outcome for an actual scenario vs. a hypothetical scenario; we suggest that the biomechanical analysis be correlated with observational epidemiologic study that supports the biomechanical conclusions. A large part of the difficulty with the practical application of Forensic Biomechanics stems from the dichotomization of continuous variables such as risk into an "injury likely" vs- "injury unlikely" delineation, as this raises the potential for false positive results, particularly when the technique is used in an exclusionary manner. An Error Odds analysis that takes into account the pre-test probability of the test result, as well as the true and false positive rate of the test is an important tool for evaluating the accuracy of the forensic biomechanical analysis. A forensic biomechanical

1 opinion that is supported by an Error Odds estimate of 10 or more is more likely
2 to survive a Daubert challenge in the courts.

3 p77.

4 I declare under penalty of perjury under the laws of the State of Washington that the
5 foregoing is true and correct.

6 DATED this 21st day of December, 2018.

7 SIGNED at: Seattle, Washington.
8
9

10 s/Anne Vankirk

11 Anne Vankirk, WSBA No. 47321

12 GLP Attorneys, Inc., P.S.

13 2601 4th Ave., Floor 6

14 Seattle, WA 98121

15 Telephone: (206) 448-1992

16 Fax: (206) 448-4640

17 E-mail: avankirk@glpattorneys.com

18 Attorney for Plaintiff Brian Reef
19
20
21
22
23
24
25
26